

NEW SPECIES AND ADDITIONS TO THE BRITISH LIST OF THE FUNGUS GNAT GENERA *ZYGOMYIA* WINNERTZ AND *SCEPTONIA* WINNERTZ (DIPTERA, MYCETOPHILIDAE)

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The British species of these two genera of small mainly dark-coloured gnats have not been revised since the work of Edwards (1925b, 1941) who figured the genitalia of most *Zygomyia* and all *Sceptonia* known to him. Little more is known of their biology since Edwards (1925b) indicated that they had not been reared and were possibly saprophagous. The present paper deals with seven additional species and other taxonomic changes affecting the British fauna, a new *Zygomyia* from eastern Europe and also one new Oriental *Zygomyia* species.

Zygomyia WINNERTZ

In addition to the five *Zygomyia* species recognized by Edwards, Barendrecht (1938), Plassmann (1977), Caspers (1980b) and Zaitzev (1989) have described and figured another six good palaeartic species, five of them from Europe. One of these, *Z. pseudohumeralis* Caspers, a new species of the *humeralis* (Wiedemann) group and another apparently undescribed species near *valida* Winnertz have been found to occur in Britain. The opportunity is taken to describe another species near *valida* from Sri Lanka. This was found at high altitude in the central mountains and is the first record of the genus from the Oriental region.

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Zaitzev (1989) also transferred *semifusca* (Meig.) and its Nearctic sibling species *paula* (Loew) from *Mycetophila* Meig. to *Zygomyia*. Edwards (1925b) noted that *semifusca* was intermediate between these genera in its short weak posterior fork. Its genital structure, figured by Zaitzev (1989) suggests relationship with the *pictipennis* (Staeger) group of *Zygomyia*.

In the same paper Zaitzev described a new species, *jakovlevi*, similar externally to *pictipennis* and figured male genitalia of both species, based on specimens from Russian Karelia (the genitalia of *pictipennis* had not been figured previously, probably because of its distinctive wing markings). All British males I have examined (including the type of *binotata* Walker) as well as several from France (including Corsica), Finland and Denmark have proved to be his *jakovlevi*, while only one male seen from Yugoslavia represents his *pictipennis*.

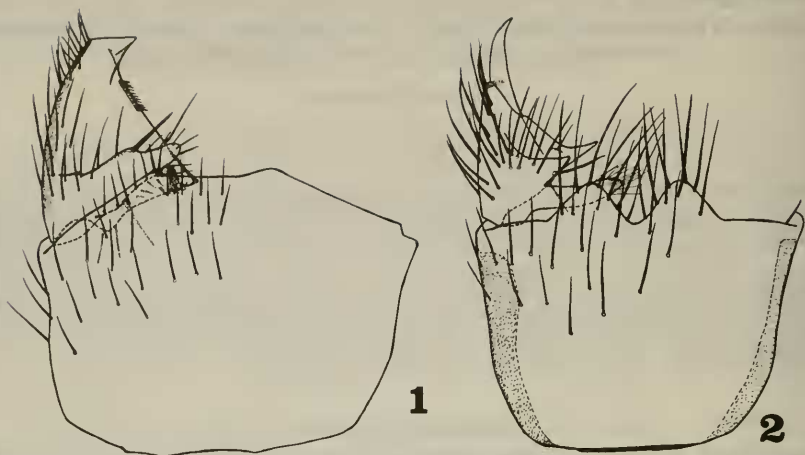
Zygomyia pictipennis (Staeger, 1840)

Mycetophila pictipennis Staeger, 1840

Mycetophila binotata Walker, 1856

Zygomyia jakovlevi Zaitzev, 1989, syn. n.

I have examined Staeger's type of *pictipennis*, which was a Danish female previously examined by Edwards (1925a) and Danish examples of both sexes from Peder Nielsen's collection; the male is *jakovlevi* and the females are indistinguishable from British females. The type of *binotata* Walk. (in BMNH) is a male of *jakovlevi*. It seems that Zaitzev was incorrect in his identification of *pictipennis*. The single female examined by Zaitzev may have been associated with the wrong males, but this cannot be confirmed pending confirmation whether the sexual dimorphism in wing markings



Figs 1-2. Ventral view of male genitalia of *Zygomyia*: 1, *Z. pictipennis* (Staeger); 2, *Z. zaitzevi* sp. n.

applies to both species and it is established whether their females can be separated. The previous usage of the name *pictipennis* is here re-established (Fig. 1) and a new name proposed for *pictipennis* sensu Zaitzev.

Zygomyia zaitzevi sp. n.

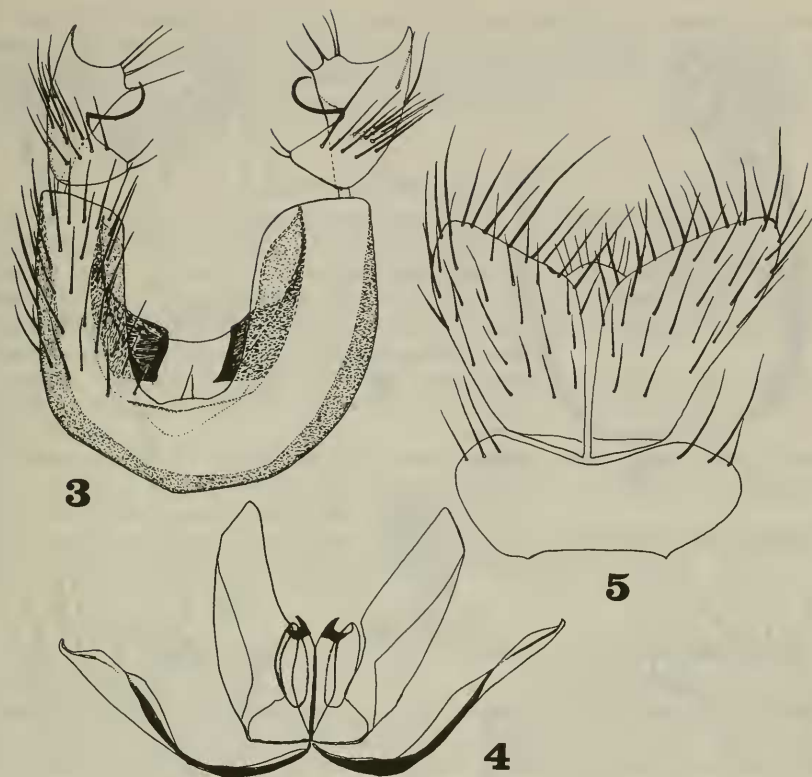
Zygomyia pictipennis sensu Zaitzev, 1989 (keyed and figured but not described, based on four males and one female from USSR, Karelia).

Male. Very similar to male of *pictipennis*, clearly differing only in male genitalia. Head and body slightly shining dark brown with dark bristling. Antennae brown, lighter on basal segments, flagellar segments almost twice as long as broad. Palpi brown. Legs mainly yellow, hind femur darkened on apical quarter and along dorsal margin. Four proepisternal bristles and 5 mesepimerals (as in *pictipennis*). Mid tibia with 2 a (3 in *pictipennis*), 4 d, 3 p on apical half, 2 v. Hind tibia with 6a, 5d. Wings yellowish with irregular brown patch over R_s , r-m and stem of median fork; a larger preapical brown marking including tip of R_1 , reaching tip of R_5 and extended vaguely across M_1 (markings as in male of *pictipennis*). Costa, radial sector and most of r-m strongly setulose, M_1 and M_2 weakly setulose on apical part only (beyond preapical wing marking). Halteres yellow. Genitalia yellow (Fig. 2). Wing length 2.6 mm.

Holotype male: Yugoslavia, Slovenia, Kranjska Gora, vi.1988 (A. E. Stubbs).

Zygomyia valeriae sp. n.

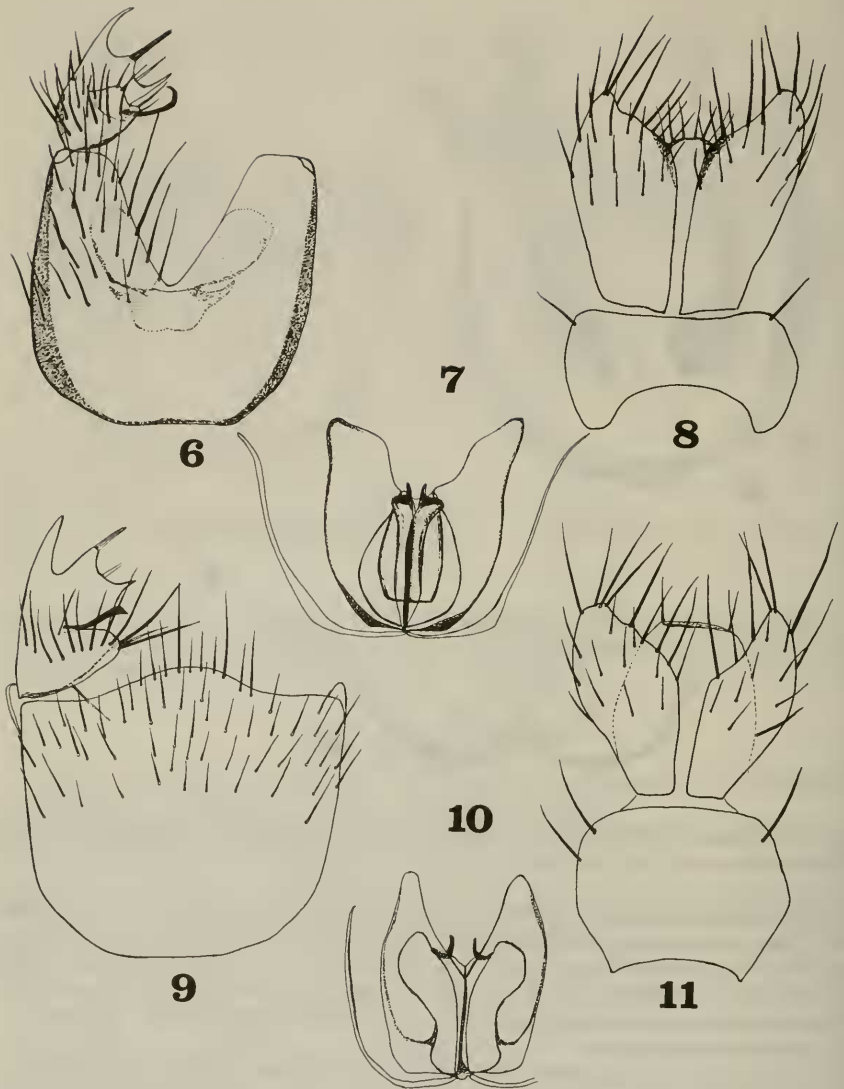
Male. Very similar in external characters to *valida* Winnertz. Body black, grey dusted with dark bristling. Antennae dark brown, with brownish yellow basal segments; flagellar segments 2.0-2.5 times as long as broad. Palpi yellow. Three proepisternals, 3-4 mesepimerals (as in *valida*). Legs mainly yellow, with hind femur dark apically



Figs 3-5. Male genitalia of *Zygomyia valeriae* sp. n.: 3, ventral view; 4, aedeagus; 5, tergite 9 and cerci.

and along dorsal margin, and hind coxa narrowly dark at base externally. Mid tibia with 2 a, 4 d, 1 strong p at apical third with 2 weaker p basal to it, 1 p-v beyond middle of shaft. Hind tibia with 6-7 a, 4-5 strong p with 1-3 weaker bristles. Wings clear, faintly yellowish; C, R, R₁, R₅ and adjoining part of r-m strongly setulose, M₁ and M₂ with weak setulae on apical part. Genitalia brownish yellow, Figures 3-5. Wing length 2.4-3.0 mm.

Holotype male: Ireland, Kerry, Muckcross, Monk's Wood, 4.v.1981 (P. J. Chandler). Paratype males: Glos., Wilderness, 29.viii.1973 (A. M. Hutson, BMNH); Wilts., Vernditch, 16.v.1974 (C. H. Andrewes, BMNH); Cambs., Cambridge, 28.viii.1913 (F. Jenkinson, Cambridge University Museum); Carmarthen, Cors Goch Llyn Llwych, 11.vii.1989 (Holmes, Boyce & Reed, PJC collection); Devon, Cove (north of Tiverton), 9.v.1989 (A. E. Stubbs, PJC collection); Devon, Windbury Woods, 17.vi.1989; Yorks., Monk Fryston, 7.vi.1988 (2 males); Yorks., Duncombe Park, 12.x.1990; Glos., Ashwell Grove, 25.vi.1972; Glos., Cirencester Park, Oakley Wood, 30.ix.1989; Roxburgh, Newtown St Boswells, 25.x.1990 (2 males); Argyll, Glencoe alderwood, 13.vi.1976; Kerry, Muckcross Abbey Wood, 16.x.1973; Kerry, Killarney, Ross Island woods, 17.x.1973 (2 males) (above 9 localities, PJC).



Figs 6-8. Male genitalia of *Zygomysia valida* Winnertz: 6, ventral view; 7, aedeagus; 8, tergite 9 and cerci. Figs 9-11. Male genitalia of *Zygomysia valepedo* sp. n.: 9, ventral view; 10, aedeagus; 11 tergite 9 and cerci.

This species has been confused with *valida* in collections, differing principally in the male genitalia with a deeper ventral excavation and small differences in the stylomeres. Females with fore tarsi less thickened than in *valida* are tentatively considered to belong to *valeriae*, but differences in ovipositor structure are slight and they have not been included among the paratypes.

Z. valeriae is widespread in Europe and I have seen males from Yugoslavia, Spain, France (including Corsica), Italy (Sardinia), Greece (Crete and Cephalonia) and Czechoslovakia. *Z. valida* is generally more common in Britain and Europe; its genitalia are figured here for comparison (Figures 6-8).

Zygomomyia valepedro sp. n.

Male. Head black, grey dusted. Antennae dark brown with yellow basal segments. Palpi yellow. Thorax shining dark brown, only thinly dusted, with small yellow humeral patch. Legs mainly yellow with hind femur marked as in *valida* and *valeriae*; tibial chaetotaxy also as in these species. Wing characters as in *valida* and *valeriae*. Abdomen mainly dark brown, sternites 1-4 and side margin of tergites 3-4 yellowish. Genitalia yellow, Figures 9-11. Wing length 2.5 mm.

Female. External characters as male except abdomen all dark and segments 2-4 of fore tarsi thickened ventrally as in allied species. Ovipositor brownish yellow.

Holotype male: Sri Lanka, slopes of Pidurutalagala above Nuwara Eliya, Pedro Forest Reserve, 27.ii.1974 (P. J. Chandler). Paratype female: Sri Lanka, Nuwara Eliya, open bog by golf course, 26.ii.1974 (PJC).

This is close externally to the above species, differing in the male genital structure with a convex apical margin to the gonocoxopodite (genital capsule).

The *Zygomomyia humeralis* (Wiedemann, 1817) group

Edwards (1925b) recognized two species of this group, *humeralis* and *notata* (Stannius, 1831). These differ from other European species in having stronger tibial bristles and a series of short p-d bristles on the apical half of the hind tibia, as well as the dorsal and ventral stylomeres of the male genitalia being discrete and not fused as in other groups of the genus. Leonard Kidd and Michael Ackland recognized some years ago that there were two further species in this group in Britain (specimens and drawings in Liverpool City Museum) and one of these has since been described from Germany as *pseudohumeralis* by Norbert Caspers (1980b). This is added here and the other species, closer to *notata*, is described as *kiddi* sp. n.

These four species have similar wing markings with a brown patch over Rs and r-m and fainter clouding of the radial sector beyond it. It should be pointed out that the colour character used to separate *humeralis* from *notata* by Edwards does not hold good as some *humeralis* males have the thorax almost entirely dark; *pseudohumeralis* usually has the yellow humeral patch but may have it reduced, while *kiddi* has the thorax dark in most examples but a yellow patch is sometimes present. The chaetotactic character (2 anterior bristles on mid tibia in *humeralis*, 3 in *notata*) evidently holds good for these species; *pseudohumeralis* agrees with *humeralis* and *kiddi* with *notata* in this character. Male genitalia are the only reliable means of recognition of the four species and females have not been associated.

I have found that much material I had referred to *notata* actually belongs to *pseudohumeralis* or *kiddi*. The species figured by Zaitzev (1989) as *humeralis* is apparently *pseudohumeralis* while his *notata* is *kiddi*. Of the localities cited by Edwards (1925b), those for *notata* are correct except that one of two examples from Felden, Herts (15.iv.1897) is *pseudohumeralis* with a dark thorax, while the Ffrith record under *humeralis* is *kiddi* with a small yellow humeral patch (the holotype cited below).

Zygomyia pseudohumeralis Caspers (1980b)

This species is new to Britain. Caspers (1984) recorded it from Austria, Plassmann (1988) recorded it from the German North Sea Islands and I have seen it from Czechoslovakia, France, Spain and Finland. It is widespread throughout Britain (23 males from 14 counties examined); similar numbers of *humeralis* and *kiddi* have also been examined and I have confirmed 17 British males as *notata*. Male genitalia are figured (Figures 12–14) and those of *notata* (Figures 15–17) and *humeralis* (Figures 18–20) are figured for comparison.

Zygomyia kiddi sp. n.

Male. Head black, grey dusted. Antennae dark brown, basal segments and base of first flagellar segment lighter, more or less yellowish; flagellar segments almost twice as long as broad. Palpi brownish yellow. Thorax dark brown to black, thinly grey dusted, with small irregular yellow humeral patch sometimes developed (including holotype). Prothorax and pleural sutures yellowish to brown. Three proepisternals and 3 mesepimerals (as other species of *humeralis* group). Legs mainly yellow, hind femur darkened on apical fifth and narrowly along dorsal margin as in allied species. Mid tibia normally with 3 a (a few examples have only 2 on one leg), 5 d, 3 p (bristles in above series all progressively longer apically), 3 v (median longest), a-d row of setulae long and fine, subequal to width of tibia. Hind tibia with 7–8 a (4th–6th shorter), 5 d (2 basal shorter), a series of 6–8 short close set p-d on apical half, 1 short p near tip. Wings yellowish, a little darker in radial sector with brown patch over Rs and r-m. Costa, radial veins and r-m brown, strongly setulose, other veins yellowish, M₁ with weak setulae almost to base and M₂ on apical three-quarters (as other species of *humeralis* group). Halteres yellow. Abdomen black, more or less shining, genitalia brown (Figures 21–23). Wing length 2.2–3.0 mm.

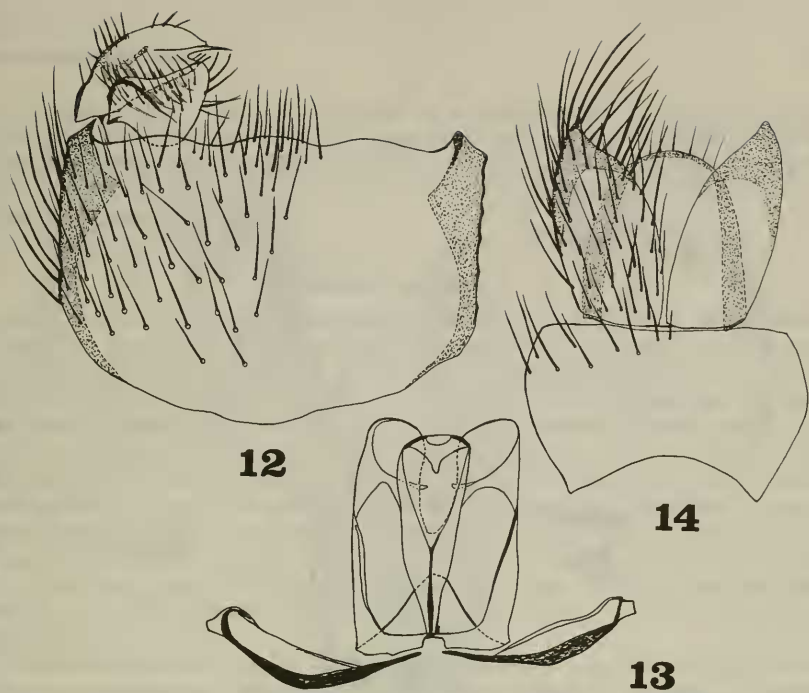
Holotype male: Dyfed (Flintshire), Ffrith, 7–9.vi.1919 (F. W. Edwards, BMNH). Paratype males: 'N. Wales', Coed Camlyn, 23.viii.1965 (A. Brindle, Liverpool City Museum); Cheshire, Cotterill Clough, 31.x.1930 (2 males, H. Britten, Liverpool City Museum); Norfolk, Blickling, osier carr, 14.x.1983; Devon, Yarner Wood NNR, 9.x.1980; Devon, Lowen House Woods, 12.x.1980; Sussex, Rake Pond, 13.x.1989; Somerset, Shapwick Heath, 17.x.1986 (above 5 localities, P. J. Chandler).

A further 16 British males, from Cambs., Wor., Hants, Surrey, N. Yorks, Durham, Northumberland, Powys and Gwynedd and some Finnish specimens have also been examined.

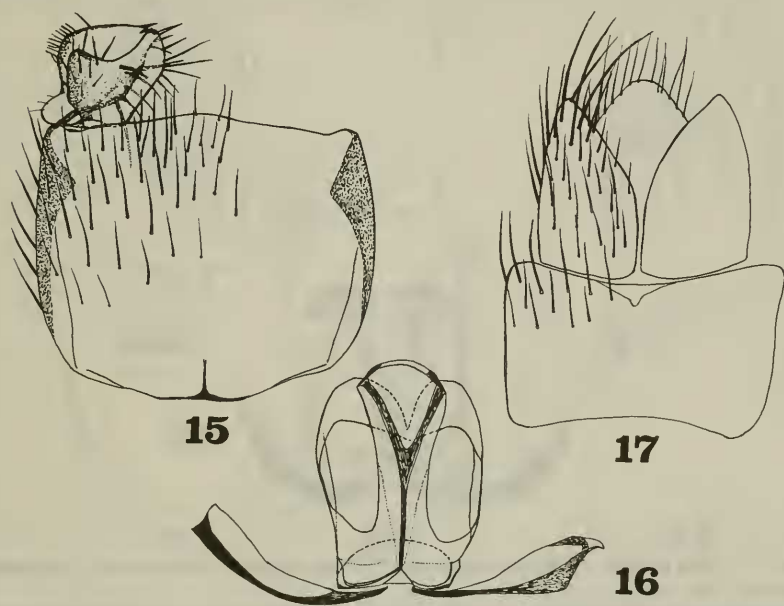
Sceptonia Winnertz, 1863

Edwards (1925b) recognized and figured the genitalia of eight species, five of them described as new and (1941) added another new species, *S. humerella*. Examination of additional material has disclosed that at least four further species occur in Britain, but some of these and others remain little known.

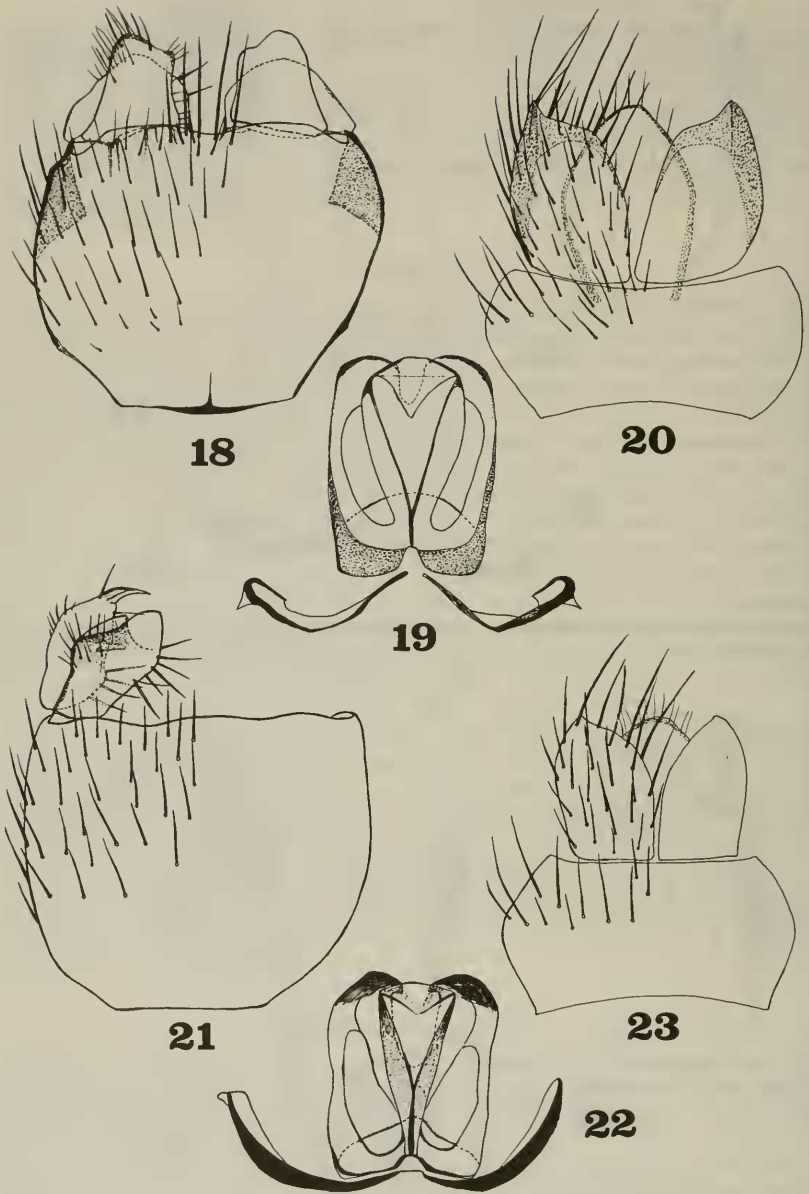
Of the previously known species, *nigra* (Meig.), *membranacea* Edw. and *fumipes* Edw. are generally common. Edwards separated *fumipes* from other members of the *concolor* Winnertz group by its strongly darkened legs; however, specimens of *fumipes* with the legs mainly yellow and only the hind femur darkened apically as in other members of the group, are not infrequent. Of the species added here, one belongs to the *nigra* group, while the other three run to couplet 5 in Edwards' key and these species can only be reliably separated by examination of the male genitalia.



Figs 12-14. Male genitalia of *Zygomyia pseudohumeralis* Caspers: 12, ventral view; 13, aedeagus; 14, tergite 9 and cerci.



Figs 15-17. Male genitalia of *Zygomyia notata* (Stannius); 15, ventral view; 16, aedeagus; 17, tergite 9 and cerci.



Figs 18–20. Male genitalia of *Zygomyia humeralis* (Wiedemann): 18, ventral view; 19, aedeagus; 20, tergite 9 and cerci.

Figs 21–23. Male genitalia of *Zygomyia kiddi* sp. n.: 21, ventral view; 22, aedeagus; 23, tergite 9 and cerci.

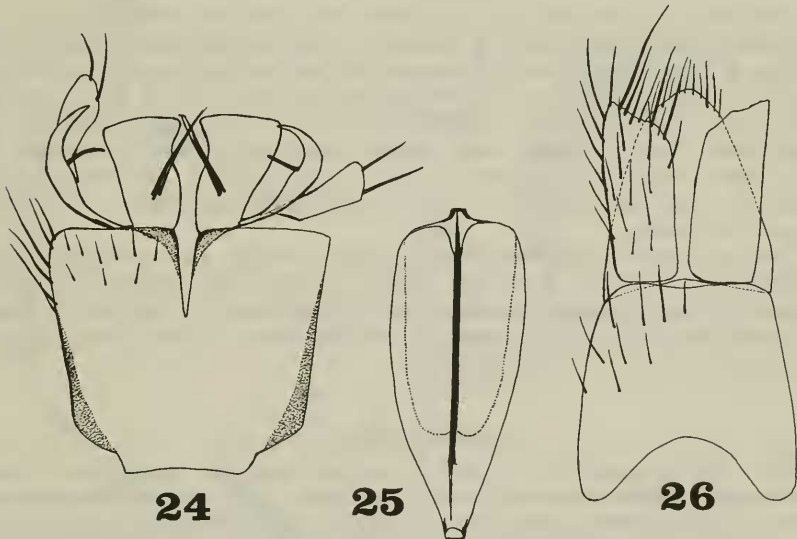
S. costata (van der Wulp), *S. fuscipalpis* Edw. and *S. flavipuncta* Edw. are proving to be widespread, while *tenuis* Edw. is apparently scarce (two new records: Norfolk, Thompson Common, by pingos, 1.vi.1985, PJC; Oxon, Spartum Fen, malaise trap, 20.ix.-3.xii.1988, K. Porter). No new records have become available of *concolor* Winnertz or *humerala* Edw.

***Sceptonia cryptocauda* sp. n.**

Male. Head shining black. Antennae brown with basal segments yellow, about subequal to fore tarsus in length. Median flagellar segments nearly twice as long as broad. Thorax shining black except narrow posthumeral angle. Legs yellow except hind coxa narrowly black at base (up to basal third in Thompson Common and some Leckford examples) and hind femur black on about apical half (a little more in Thompson Common example). Mid tibia with 2 a, 3 d, 1 fine p-v. Hind tibia with 6 a (4th and 5th shorter) and 3 strong d. Abdomen mainly shining black but tergites 1-3 more or less broadly yellow at side margins, this colour extended dorsally along sutures as triangular markings; genitalia yellow (Figures 24-26). Wings yellowish with all veins yellow, R_5 little more than its width removed from R_1 where these veins run parallel; r-m and basal part of M_1 slightly suffused brownish; C, R_1 and R_5 bristled, other veins bare. Halteres yellow. Wing length 2.0-2.5 mm.

Female. Very similar in most respects. Antenna shorter than fore tarsus, median flagellar segments about 1.5 times as long as broad. Markings on tergites 1-3 as male; apical margin of tergite 6 and ovipositor yellow. Wing 2.4 mm.

Holotype male: Ireland, Roscommon, Lough Key Forest Park, 28.ix.1977 (P. J. Chandler). Paratype males: 1 with same data as holotype; Glos., Ashwell Grove, 25.vi.1972; Wilts., Savernake Forest, 25.viii.1973; Somerset, Murder Combe,



Figs 24-26. Male genitalia of *Sceptonia cryptocauda* sp. n.: 24, ventral view; 25, aedeagus; 26, tergite 9 and cerci.

2.vii.1985; Somerset, Ebbor Gorge NNR, 3.vii.1985; Avon, Blaise Woods, 4.vii.1985 (2 males); Norfolk, Thompson Common, 16.x.1983; Hants, Leckford, Reserve D, 23.ix.1977 (2 males) (above all PJC); Hants, Leckford, Reserve C, 3.x.1970 (A. E. Stubbs, PJC collection); Oxon, near Cothill, 7.ix.1989 (J. W. Ismay); Oxon, Barrow Farm Bog, malaise trap, 18.viii–19.ix.1987 (K. Porter); London, Sydenham Hill Wood, 26.ix.1987 (A. Godfrey). Paratype females: Avon, Blaise Woods, 4.vii.1985 (PJC); Isle of Wight, Farringford, 25–29.vi.1921 (F. Jenkinson, Cambridge University Museum).

This species was mentioned by Chandler (1978) as being a new species of the *nigra* group, with genital structure differing a little from the other species, yellow marking on the abdomen as in *costata* (Wulp) but dark marking on the hind coxa usually less extensive (a male *costata* from Logie, 4.ix.1909, F. Jenkinson, Cambridge University Museum, has the hind coxa only narrowly darkened). *S. costata* is usually larger (male wing 2.3–2.7 mm, female wing 2.7–2.9 mm) with the sides of tergites 2–3 usually more broadly yellow, hind coxa usually black on at least basal third and hind femur black on more than apical half. The male genitalia of *cryptocauda* differ in that the ventral stylomere is formed more as in *membranacea* with the tuft of long hairs internal and directed across its fellow rather than directed posteriorly in an apical position as in *costata*. *S. nigra* and *S. membranacea* usually have the body entirely black, but a few examples with yellow abdominal markings as in *cryptocauda* have been examined; both may have the hind coxa broadly darkened basally but *membranacea* usually has the darkening as narrow as in *cryptocauda*. *S. membranacea* differs from *nigra* in a distinctly longer male antenna with median flagellar segments more than twice as long as broad, and the radial veins slightly brownish contrasted with the remaining yellow veins.

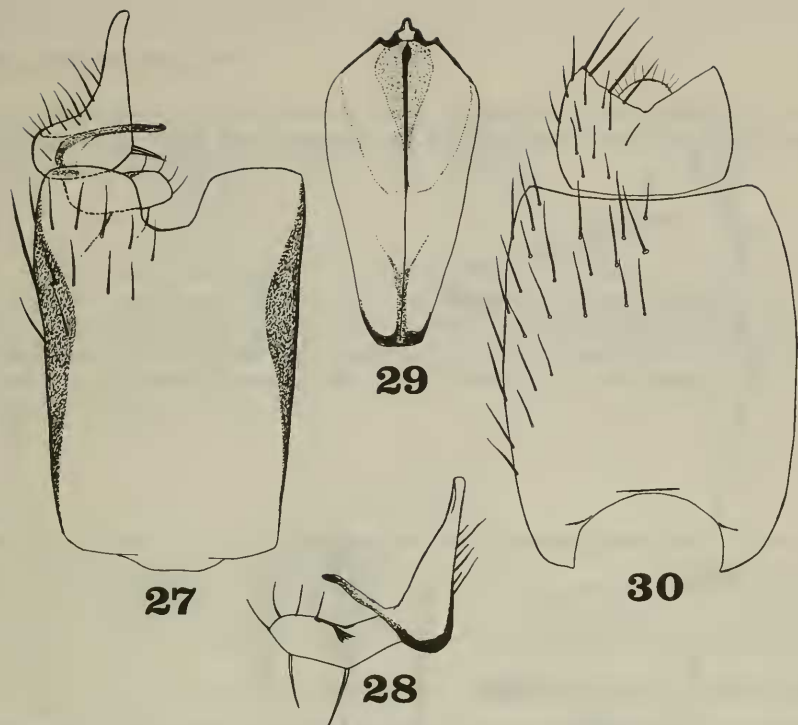
Sceptonia pughi sp. n.

Male. Head and body entirely shining black. Antennae dark brown, a little lighter on basal segments, about as long as hind tarsi; median flagellar segments about twice as long as broad. Palpi brown to brownish yellow. Legs yellow except apical half or a little more of hind femur blackish. Middle tibia with 2 a, 3 d, 1 p-v near two-thirds length. Hind tibia with 6–8 a (4th/5th–6th shorter), 3 d (all bristles 2–3 times tibial width). Wings yellowish, more strongly near costa, with all veins yellow, R_5 about three times its width removed from R_1 ; C, R, R_1 and R_5 (but not R_s) setose, other veins bare. Halteres yellow. Genitalia brownish yellow, Figures 27–30. Wing length 1.9–2.1 mm.

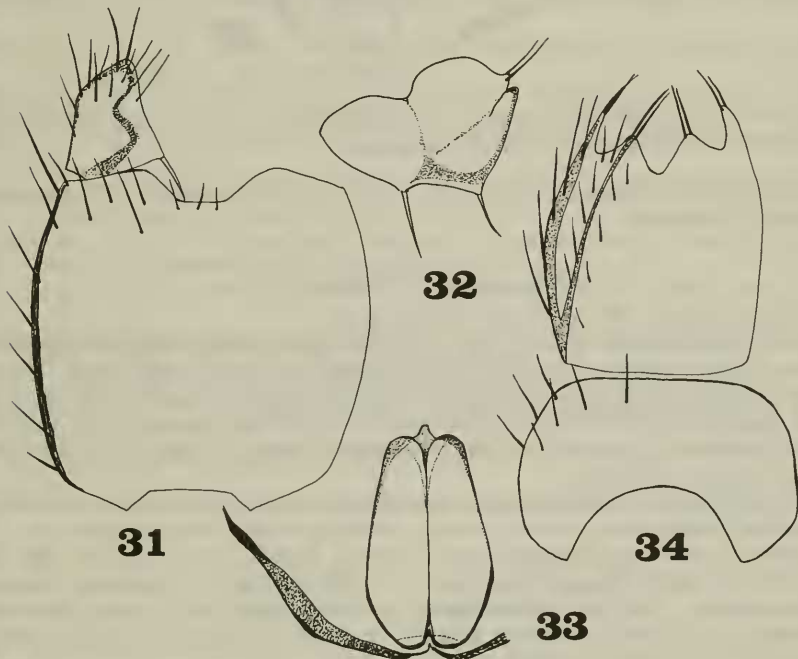
Holotype male: labelled 'Dolgelley, 13.6.87', i.e. Wales, Gwynedd (Merioneth), Dolgellau, 13.vi.1887, G. H. Verrall, Oxford University Museum. Paratype males: England, Devon, Chudleigh (woodland at Chudleigh Rocks), 11.x.1980 (M. Pugh, PJC collection); France, Lot, south of Labastide-Murat, shaded track at edge of meadow, 24.vi.1980 (P. J. Chandler).

Sceptonia regni sp. n.

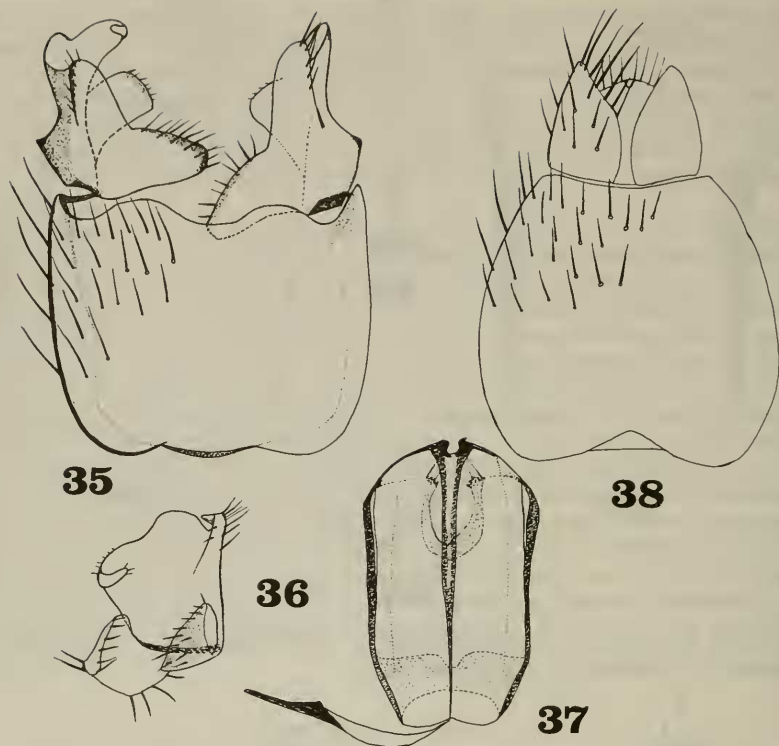
Male. Closely resembling *S. pughi* in external characters. Body shining black, antennae and palpi entirely dark brown. Legs yellow, with hind coxa blackish near basal margin and hind femur blackish on almost apical half. Middle tibia with 1 a, 3 d, 1 short p-v at apical third. Hind tibia with 6 a (4th/5th a little shorter), 3 d. Wings as *pughi*. Halteres missing in holotype. Genitalia brownish yellow, Figures 31–34. Wing length 2.0 mm.



Figs 27-30. Male genitalia of *Sceptonia pughi* sp. n.: 27, ventral view; 28, internal view of stylomeres; 29, aedeagus; 30, tergite 9 and cerci.



Figs 31-34. Male genitalia of *Sceptonia regni* sp. n.: 31, ventral view; 32, internal view of stylomeres; 33, aedeagus; 34, tergite 9 and cerci.



Figs 35–38. Male genitalia of *Sceptonia pilosa* Bukowski: 35, ventral view; 36, internal view of stylomeres; 37, aedeagus; 38, tergite 9 and cerci.

Holotype male: Sussex, Crowborough, 14–25.vii.1912 (F. Jenkinson, Cambridge University Museum).

Sceptonia pilosa Bukowski, 1934

A species new to Britain of the *concolor* group.

Male. Head and body shining black. Antennae dark brown, with basal segments yellow; median flagellar segments about 2.5 times as long as broad. Palpi yellow. Legs yellow except apical two-fifths of hind femur black. Mid tibia with 2 a, 3 d, 1 p-v. Hind tibia with 6–7 a (4th/5th shorter), 3 d (4th basal d on one leg in Weston Wood specimen). Wings as *pughi*. Halteres yellow. Genitalia brown, Figures 35–38. Wing length 2.8–3.0 mm.

Female. Similar to male. Front tarsi with segments 2 and 3 a little enlarged ventrally. Wing length 3.0 mm.

Material examined: England: Avon, Weston Wood, 16.x.1986, male (R. K. Merrifield); Hants, Selborne Common, 28.v.1988, male (P. J. Chandler). France: Seine-et-Marne, Forêt de Fontainebleau, 15.v.1989, male (PJC); Gard, Forêt de Valbonne, 21.ix.1977, male (L. Matile). Yugoslavia: Croatia, Plitvice Lakes, 22–26.ix.1987, 9 males, 1 female (A. E. Stubbs).

S. pilosa was described from 29 males, 18 females from the USSR, Crimea. Bukowski's figures of the genitalia fit the specimens cited here quite well. Caspers (1980a) recorded one male of *pilosa* from Germany.

ACKNOWLEDGEMENTS

I have to thank the authorities of the British Museum (Natural History) and of several other Museums in the British Isles for the opportunity to examine material. Loïc Matile kindly facilitated my examination of the collections at Paris during my visit there in 1989 and I am indebted to Verner Michelsen for the chance to see Danish examples of *Z. pictipennis*.

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